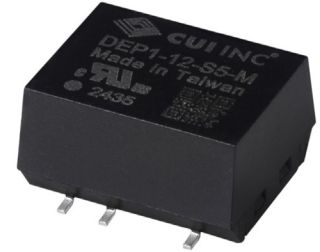


SERIES: DEP1-M | **DESCRIPTION:** DC-DC CONVERTER
FEATURES

- 1 W isolated output
- compact SMT package
- single and dual unregulated outputs
- 3,000 Vdc isolation voltage
- -40 to 120°C with derating
- certified to UL 62368-1
- continuous short circuit protection

**MODEL**

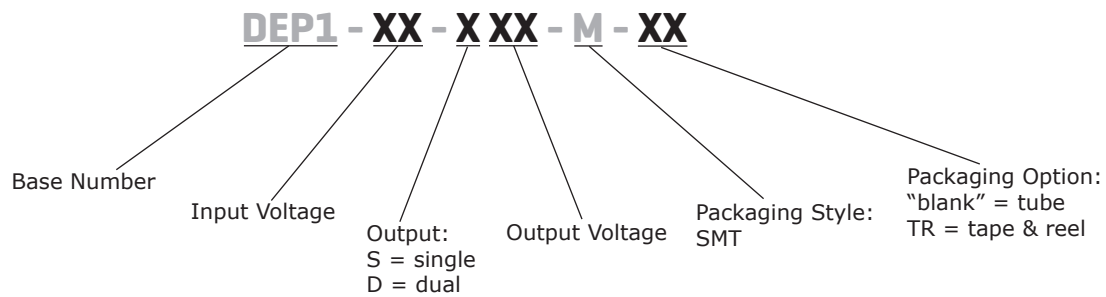
MODEL	input voltage		output voltage	output current	output power	ripple & noise ¹	efficiency ²
	typ (Vdc)	range (Vdc)				max (mVp-p)	typ (%)
DEP1-3-S3-M	3.3	2.97~3.63	3.3	303	1	100	73
DEP1-3-S5-M	3.3	2.97~3.63	5	200	1	100	78.9
DEP1-3-S12-M	3.3	2.97~3.63	12	84	1	100	82.5
DEP1-3-S15-M	3.3	2.97~3.63	15	67	1	100	85.5
DEP1-3-D3-M	3.3	2.97~3.63	±3.3	±152	1	100	77
DEP1-3-D5-M	3.3	2.97~3.63	±5	±100	1	100	79
DEP1-3-D9-M	3.3	2.97~3.63	±9	±56	1	100	79
DEP1-3-D12-M	3.3	2.97~3.63	±12	±42	1	100	79
DEP1-3-D15-M	3.3	2.97~3.63	±15	±34	1	100	79
DEP1-5-S3-M	5	4.5~5.5	3.3	303	1	100	77
DEP1-5-S5-M	5	4.5~5.5	5	200	1	100	77.8
DEP1-5-S9-M	5	4.5~5.5	9	112	1	100	78
DEP1-5-S12-M	5	4.5~5.5	12	84	1	100	78.5
DEP1-5-S15-M	5	4.5~5.5	15	67	1	100	79.4
DEP1-5-D3-M	5	4.5~5.5	±3.3	±152	1	100	77
DEP1-5-D5-M	5	4.5~5.5	±5	±100	1	100	78
DEP1-5-D9-M	5	4.5~5.5	±9	±56	1	100	78
DEP1-5-D12-M	5	4.5~5.5	±12	±42	1	100	79
DEP1-5-D15-M	5	4.5~5.5	±15	±34	1	100	77
DEP1-12-S3-M	12	10.8~13.2	3.3	303	1	100	74
DEP1-12-S5-M	12	10.8~13.2	5	200	1	100	73.5
DEP1-12-S9-M	12	10.8~13.2	9	112	1	100	78.5
DEP1-12-S12-M	12	10.8~13.2	12	84	1	100	80
DEP1-12-S15-M	12	10.8~13.2	15	67	1	100	83
DEP1-12-D3-M	12	10.8~13.2	±3.3	±152	1	100	74
DEP1-12-D5-M	12	10.8~13.2	±5	±100	1	100	75
DEP1-12-D9-M	12	10.8~13.2	±9	±56	1	100	80
DEP1-12-D12-M	12	10.8~13.2	±12	±42	1	100	84
DEP1-12-D15-M	12	10.8~13.2	±15	±34	1	100	80

MODEL

	input voltage		output voltage	output current	output power	ripple & noise ¹	efficiency ²
	typ (Vdc)	range (Vdc)					
DEP1-15-S5-M	15	13.5~16.5	5	200	1	100	74.1
DEP1-15-S12-M	15	13.5~16.5	12	84	1	100	81
DEP1-24-S5-M	24	21.6~26.4	5	200	1	100	73.5
DEP1-24-S12-M	24	21.6~26.4	12	84	1	100	80
DEP1-24-S15-M	24	21.6~26.4	15	67	1	100	81.5
DEP1-24-D3-M	24	21.6~26.4	±3.3	±152	1	100	79
DEP1-24-D5-M	24	21.6~26.4	±5	±100	1	100	74
DEP1-24-D9-M	24	21.6~26.4	±9	±56	1	100	79
DEP1-24-D12-M	24	21.6~26.4	±12	±42	1	100	82
DEP1-24-D15-M	24	21.6~26.4	±15	±34	1	100	82

Notes:

1. At full load, nominal input, 20 MHz bandwidth oscilloscope.
2. The efficiency is test by nominal input and max. full load at 25°C.
3. All specifications measured at Ta=25°C, nominal input voltage, rated output load, and after warm up unless otherwise specified.

PART NUMBER KEY**INPUT**

parameter	conditions/description	min	typ	max	units
input voltage range		-10		+10	%
filter	capacitance filter				

OUTPUT

parameter	conditions/description	min	typ	max	units
maximum capacitive load	3.3, 5 Vdc output models			470	μF
	9 Vdc output models			220	μF
	12, 15 Vdc output models			100	μF
	±3.3, ±5 Vdc output models			±150	μF
	±9 Vdc output models			±100	μF
	±12, ±15 Vdc output models			±47	μF
voltage accuracy		-5		+5	%
line regulation	measured from low to high line, full load		1.2		%
load regulation	measured from 10~100% load				
	3.3, 5, ±3, ±5 Vdc output models			15	%
	9, 12, 15, ±9, ±12, ±15 Vdc output model			10	%
switching frequency	at Vin nominal, full load	20			kHz

PROTECTIONS

parameter	conditions/description	min	typ	max	units
short circuit protection	continuous				

SAFETY AND COMPLIANCE

parameter	conditions/description	min	typ	max	units
isolation voltage	input to output for 1 minute	3,000			Vdc
isolation capacitance				20	pF
safety approvals	certified to 62368-1: UL				
EMI	EN 55032 Class A/B (see recommended circuit)				
ESD	EN 61000-4-2, Air ± 8 kV; Contact ± 6 kV, perf. Criteria B				
radiated immunity	EN 61000-4-3, 3 V/m, perf. Criteria A				
fast transient	EN 61000-4-4, ± 1 kV, perf. Criteria B				
surge	EN 61000-4-5, ± 0.5 kV, perf. Criteria B				
conducted immunity	EN 61000-4-6, 3 Vrms, perf. Criteria A				
magnetic field immunity	EN 61000-4-8, 1 A/m at 50 Hz, perf. Criteria A				
vibration	MIL-STD-202G				
MTBF	at 25°C single output dual output	2,992,000 21,400,000			hours hours
	at 85°C single output dual output	955,000 7,800,000			hours hours
RoHS	yes				

ENVIRONMENTAL

parameter	conditions/description	min	typ	max	units
operating temperature	see derating curves	-40		105	°C
storage temperature		-55		125	°C
maximum case temperature				120	°C
operating humidity	non-condensing	-		95	%

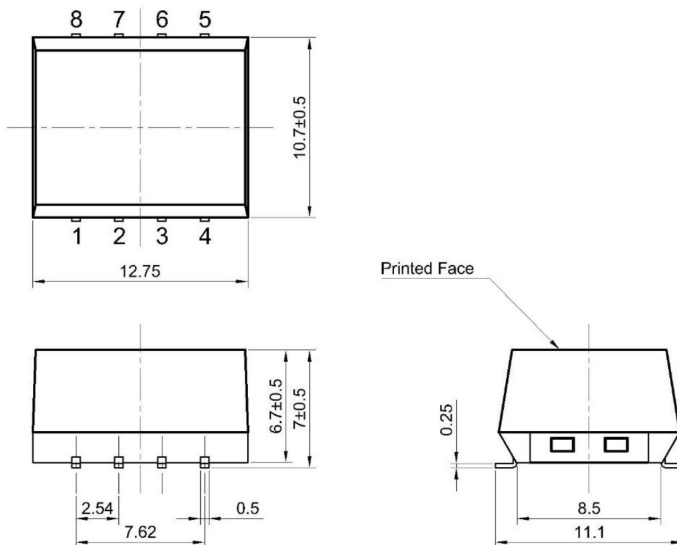
MECHANICAL

parameter	conditions/description		min	typ	max	units
dimensions	single output	12.75 (L) x 10.70 (W) x 7.00 (H)				mm
	dual output	15.24 (L) x 10.70 (W) x 7.00 (H)				mm
case material	UL94V-0 black plastic					
weight	single output				1.0	g
	dual output				1.2	g

MECHANICAL DRAWING

Single output

units: mm

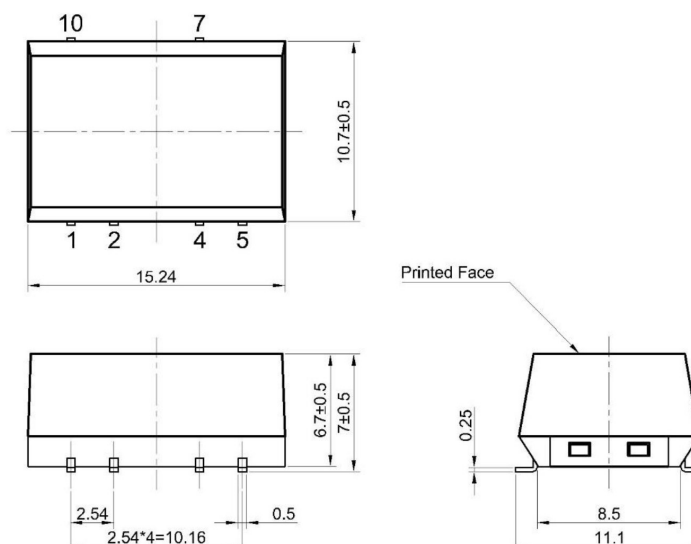
tolerance: ± 0.25 mmpin section tolerance: ± 0.1 mm

PIN CONNECTIONS	
PIN	Functions
1	-Vin
2	+Vin
3	no pin
4	-Vout
5	+Vout
6	no pin
7	no pin
8	NC

NC = no connection

Dual output

units: mm

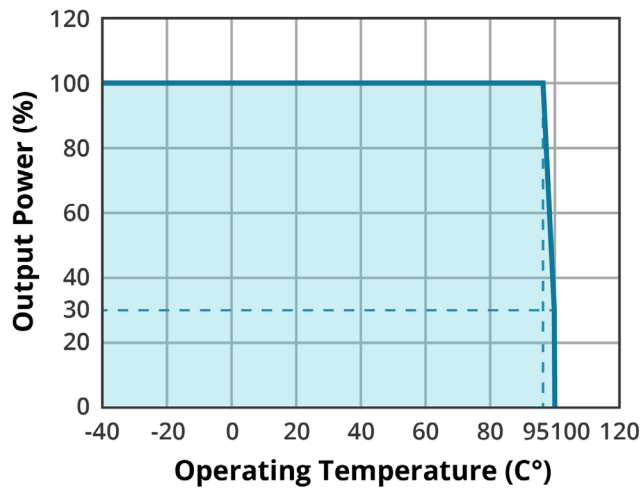
tolerance: ± 0.25 mmpin section tolerance: ± 0.1 mm

PIN CONNECTIONS	
PIN	Functions
1	-Vin
2	+Vin
4	Com.
5	-Vout
7	+Vout
10	NC

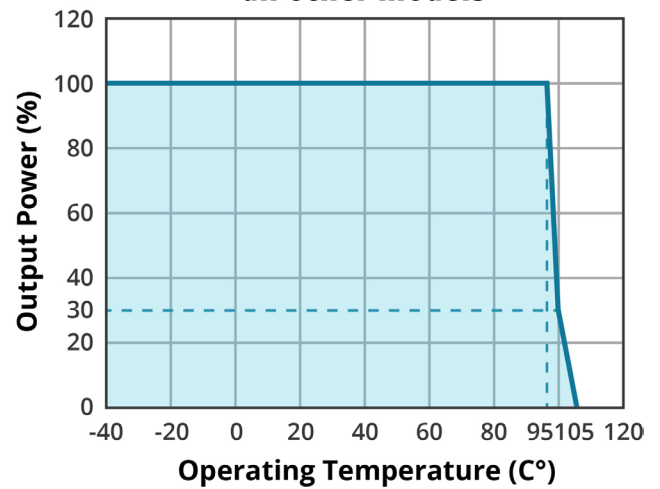
NC = no connection

DERATING CURVE

TEMPERATURE DERATING CURVE
(natural convection 20 LFM)
DEP1-3-S12-M & DEP1-3-S15-M

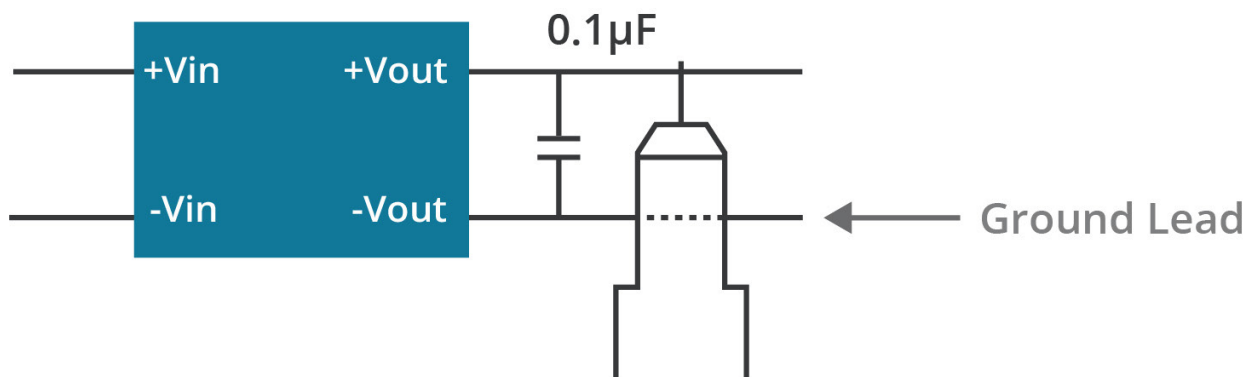


TEMPERATURE DERATING CURVE
(natural convection 20 LFM)
all other models



RIPPLE AND NOISE MEASURE METHOD

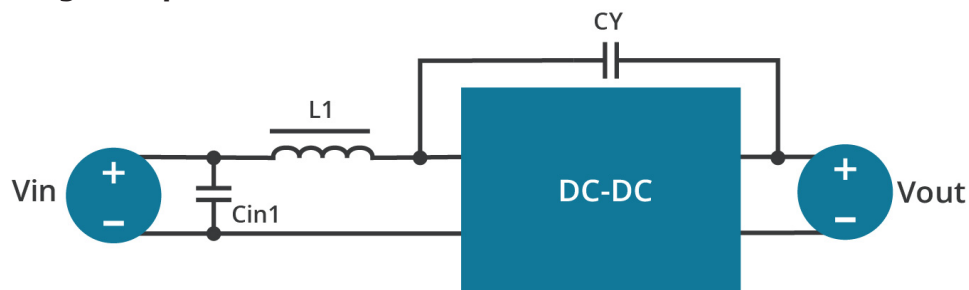
Figure 1



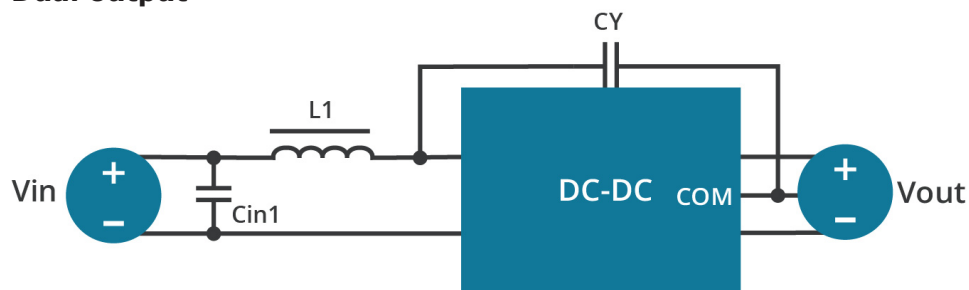
Note: Measured with 20MHz bandwidth and 0.1μF ceramic capacitor.

EMI RECOMMENDED CIRCUIT FOR CLASS A

Figure 2
Single output



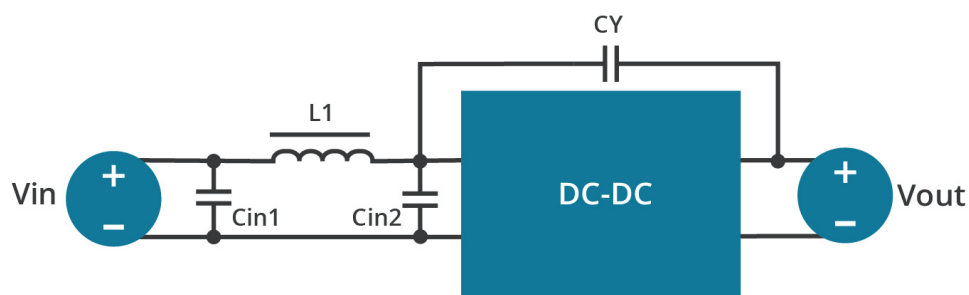
Dual output



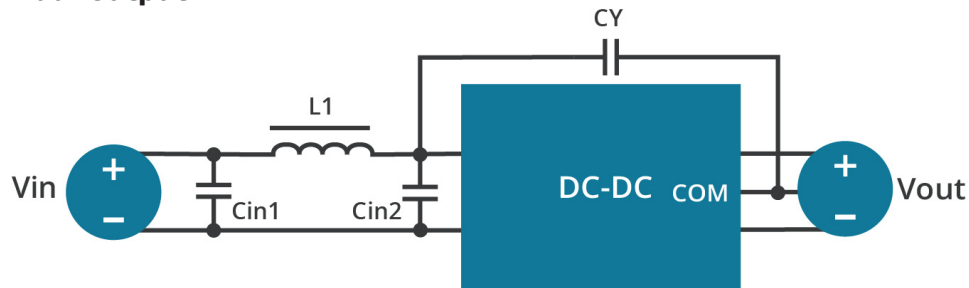
Vin	Inductance/Capacitance	
	(Lin/Cin1)	CY
3.3	22μH/4.7μF	NA
others	22μH/4.7μF	220P

EMI RECOMMENDED CIRCUIT FOR CLASS B

Figure 3
Single output



Dual output



Vin	Inductance/Capacitance	
	(Lin/Cin1/Cin2)	CY
3.3	22μH/4.7μF/4.7μF	NA
others	22μH/4.7μF/4.7μF	220P

REVISION HISTORY

rev.	description	date
1.0	initial release	12/18/2024
1.01	maximum operating temperature updated, EMI filtering added	01/15/2025

The revision history provided is for informational purposes only and is believed to be accurate.



CUI INC
a bel group

Headquarters
15575 SW Sequoia Pkwy #100
Portland, OR 97224
800.275.4899

Fax 503.612.2383
cui.com
techsupport@cui.com

CUI offers a two (2) year limited warranty. Complete warranty information is listed on our website.

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